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FLOODPLAIN MANAGEMENT RECONNAISSANCE STUDY REPORT

KIRKLAND DEKALB COUNTY



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VILLAGE OF KIRKLAND
DEKALB COUNTY, ILLINOIS
FLOODPLAIN MANAGEMENT
RECONNAISSANCE STUDY

Prepared By

U.S. Department of Agriculture
Soil Conservation Service
Champaign, Illinois

In cooperation with

STATE OF ILLINOIS
Department of Transportation
Division of Water Resources

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VILLAGE OF KIRKLAND
RECONNAISSANCE STUDY

INTRODUCTION

Use of floodprone areas can be a severe problem in Illinois. Urbanization and floodplain encroachment are increasing the severity of this problem. Over 800 communities in Illinois have been identified as having flooding problems.

The Illinois Division of Water Resources (DWR) is the responsible state agency for urban flood control and for setting priorities of flood studies within urban areas. The Soil Conservation Service is providing assistance to the Division of Water Resources in setting these priorities. A joint coordination agreement was executed between the Division of Water Resources, State of Illinois, and the USDA, Soil Conservation Service on April 30, 1976 and revised in December 1978 to furnish technical assistance in carrying out Flood Hazard Studies. These studies are carried out in accordance with Federal Level Recommendation 3 of "A Unified National Program for Flood Plain Management," and under Section 6 of Public Law 83-566. A plan of study was executed in October 1983 for reconnaissance studies for 15 Illinois communities. These reconnaissance studies will utilize existing floodplain information, historical high water profiles, and the 100 year floodplain from flood insurance studies when available. Average annual damages are estimated for the structures within the floodplain.

This study was conducted and the report provided for the purposes of:

1) To evaluate needs for additional future studies, 2) to estimate average annual damages, 3) to provide an updated estimate of the 100 year floodplain and map, and 4) to provide guidance and recommendations to the community for improved floodplain management.

STUDY AREA DESCRIPTION

The village of Kirkland is located in DeKalb County, approximately 17 miles north and west of the city of DeKalb. The population of Kirkland is 1,155, according to the 1980 census.

Transportation facilities within the Kirkland area consist of the Chicago, Milwaukee, St. Paul, and Pacific Railroad, and Illinois State Route 72. By the use of major blacktop roads, Kirkland is connected to other cities, villages, and state highways in the area.

The main flood water problems to the village of Kirkland are caused by Bull Run Ditch and the South Branch Kishwaukee River. Bull Run Ditch outlets in the South Branch of the Kishwaukee River and has a watershed area of 5.9 square miles. The South Branch of the Kishwaukee River has a watershed area of 313 square miles at the west side of Kirkland. The drainage is in the Rock River Basin, hydrologic Unit #07090006, South Branch Kishwaukee River subwatershed #060.

In general, the watershed is moderately rolling cultivated cropland. Woods and timber border the South Branch of the Kishwaukee River, but these wooded areas are relatively small. Rainfall for the area is normally about 35 inches, much of which occurs in the spring months.

Most of the watershed of Bull Run Ditch is rural in nature with very little, if any, development anticipated in the foreseeable future. Only the lower one-half mile that flows along the west side of Kirkland has any development close. By enforcing their building

ordinances, construction will be kept away from this existing floodplain.

The larger drainage area of the South Branch Kishwaukee River, is also mostly rural. Several villages and small cities are located within the drainage boundaries of the river. Any large land use changes to residential and or commercial would be unlikely at this time. Individual county zoning ordinances will keep new construction away from the floodplains.

The soils of the Bull Run Ditch Watershed are Plano, Elburn, Batavia, Harvard, Octagon, Saybrook, Drummer, and Flanagan. These soils are highly productive and range in slope from 0 to 7 percent. These particular soils are not as subject to erosion as are many of the soils in the state. On the east side of Kirkland, there are two other soils which do have major problems by staying very wet. They are Houghton Muck, and Sawmill, which are bottomland soils that have unusually high watertables. Since an attempt has been made to drain this area for agriculture use, additional flooding could be expected downstream from these drained wetlands.

Sawmill is also the predominate wide bottomland soil along a large portion of the South Branch of the Kishwaukee River. The drainage area also contains many upland soils that are more likely to erode. These soils are Camden, Miami, Dodge, and Millbrook. Soils information was obtained from the soil survey of DeKalb County.

Natural Values

The village of Kirkland is located in an area of the state where there are some farms still raising livestock. Row crop fields are fairly large in size, but legumes and wheat are still grown in the area. The large drainageways, such as the Kishwaukee River Basin, are still mostly tree lined providing a large amount of varying quality riparian habitat as well as important travel routes for wildlife.

The interspersed land use and associated types of plant communities result in a variety of habitats which support a wide range of plant and animal species. The wide variety of plant and animal species present, generally make the area a pleasant place for people to live, work, and play.

FLOOD PROBLEMS

Flooding along Bull Run Ditch is generally the result of local, heavy rainfall and could occur during any part of the year. Since most of the flooding is due to heavy local rainfalls over a relatively small watershed, flooding is generally of short durations.

Flooding associated with the South Branch Kishwaukee River is different because of the fairly large drainage area. Snow melt, and ice jams could affect this area and cause major problems north of the railroad tracks. The residents of the trailer court located at Pearl and North Streets have individual storage sheds that cannot be kept flood free. All vehicles that do not leave the area before the water rises, are subject to damages such as wheel bearing replacement, or damages to the interior of the vehicles. According to local residents, this area has flooded twice in the last 14 years. These are usually flash type floods that do not last very long, but on July 3, 1983, utilities in this area had to be shut off for 3 or 4 days because of the extremely high water, and hazardous conditions to the residents of the trailer court.

Approximately 80-85 percent of the Bull Run Ditch drainage area is in row crops. Conventional tillage is still the main way of farming in this area. The area is rolling with fairly long slopes, that upon visual inspection do not indicate a serious erosion problem. Farming

trends have changed over the years with less livestock and more row crops being harvested. This has led to more and faster runoff than in previous years.

The city does have a sewage treatment plant that uses pumps to get the material into the pit. Both the old and new sanitation buildings which are located west of the pit, are subject to flooding. Based on the South Branch Kishwaukee River Floodplain Information, June 1977, Corps of Engineers publication, the dike protecting the sewage lagoon cannot be overtopped by the 100-year flood event.

Ponding does not seem to be a problem in the village of Kirkland. Discharges from sump pumps should be kept from any low areas that may now exist. These discharged waters should also be kept out of the village's sanitary sewer system, as it could overload the existing system and would cost the village because of increased treatment costs.

Problem Summary

Estimated average annual damages from floodwaters to village of Kirkland are listed below:

Number Homes or Trailers	Number Garages & Sheds	Business	Total Value	Average Annual Damages
South Branch Kishwaukee River 104	65	5		19,600

Bull Run Ditch				
11	1			2,800

Subtotal				
115	66	5	\$3,060,800	\$22,400

Approximately 40 additional wet basements:	2,000
Street maintenance:	2,600
Yard damages:	<u>3,000</u>

Total Additional Expense \$7,600

Total estimated average annual damages for the village of Kirkland equals \$30,000. Flood damages start at the 10-year frequency storm.

Existing Floodplain Management

FEMA is in the process of converting Kirkland to the regular phase of the National Flood Insurance Program as of this date. Therefore, home and business owners may purchase flood insurance. The village of Kirkland has zoning ordinances in effect and building permits are required.

RECOMMENDATIONS

Elburn, Drummer, and Flannagan are soils that have high ground water tables. Therefore, to prevent problems in areas with these soils the village needs to regulate or restrict construction in areas where excavated crawl spaces, or one-half and full basements would have problems.

The village should continue to participate in the National Flood Insurance Program. Waste water from sump pumps should not be outletted into the sanitary sewer system, as it will increase the treatment costs and possibly overload the system. Kirkland should consider asking FEMA to revise the 100-year floodplain map to match published maps in this report.

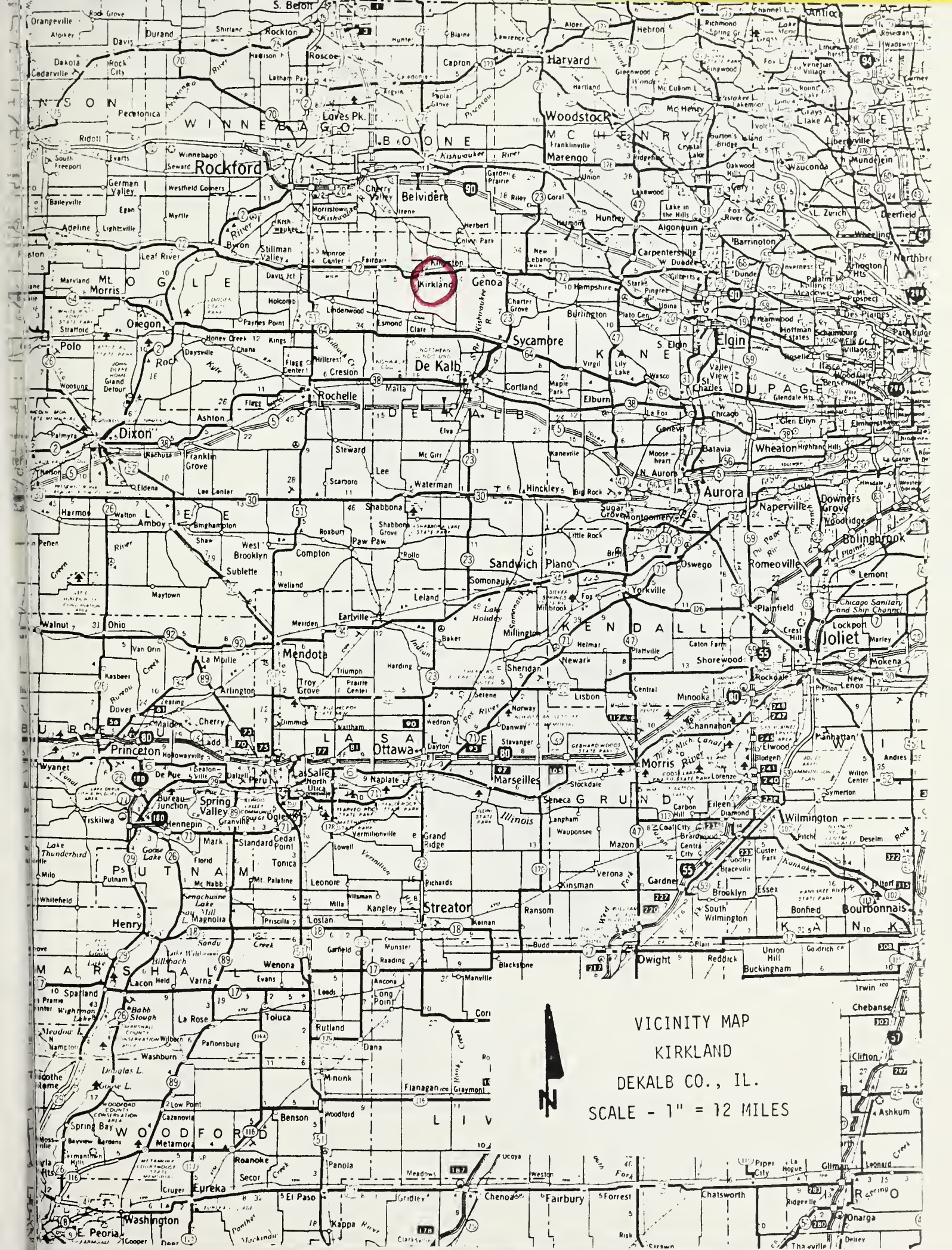
Both Bull Run Ditch and the South Branch Kishwaukee River main channels should be monitored for trees, brush, and debris in the drainageways. If needed, clearing and snagging should be a part of the maintenance plan for the channels.

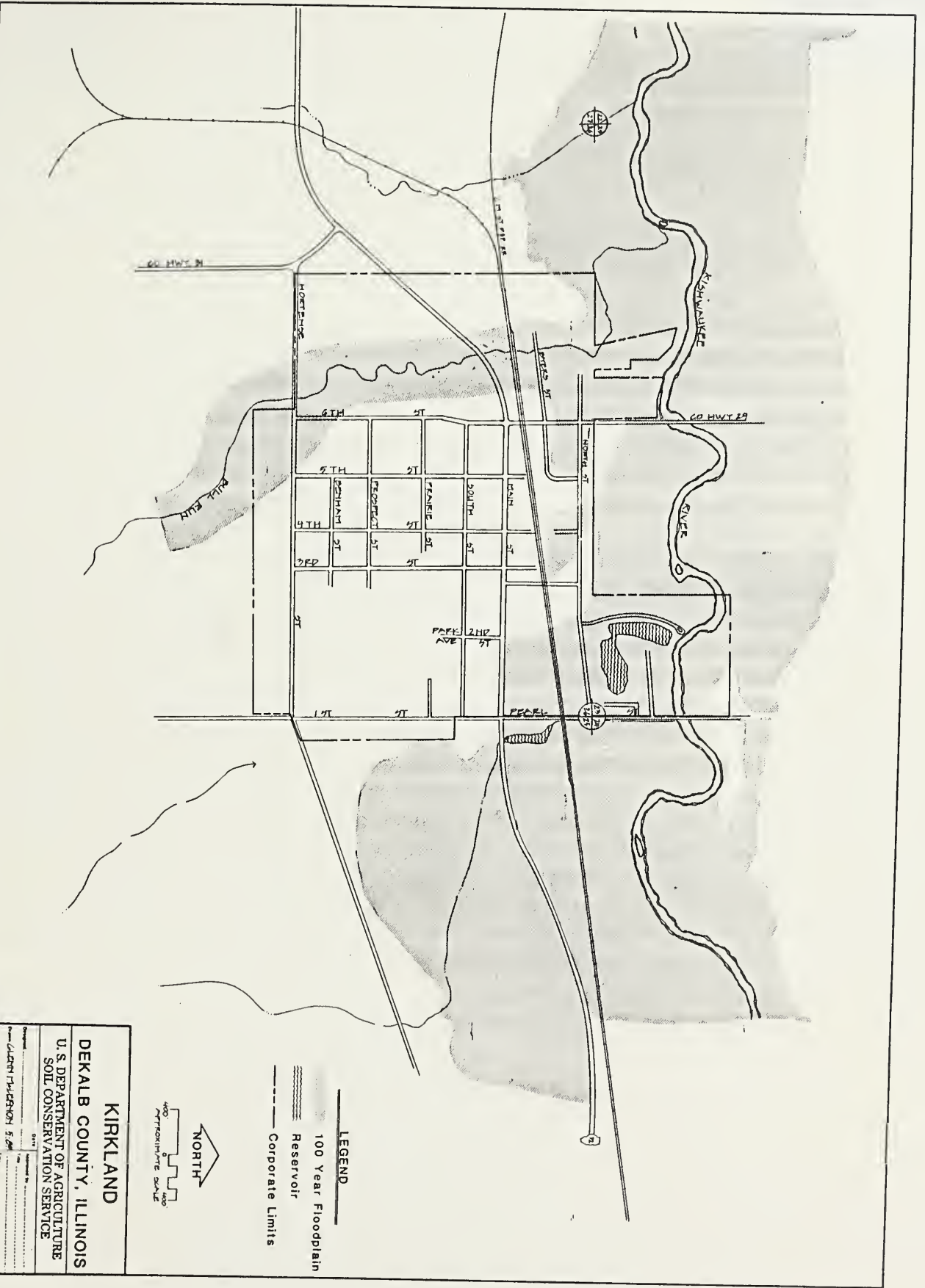
Some type of warning system should be implemented for the residents of the trailer court at Pearl and North Streets. With an adequate warning system, residents would at least be able to remove their vehicles away from the potential floodwaters. Flood damages could be eliminated or reduced significantly by moving (relocating) the trailer court to a flood free area or by elevating trailer homes or the trailer court above the 100-year flood stage.

A low priority should be assigned for future detailed floodplain management studies in Kirkland.

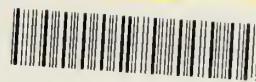
INVESTIGATIONS AND ANALYSIS

No additional calculations, discharges, or profiles were made as a part of this study. The inventory of flooding and water problems is based on field reviews and interviews with local citizens. The 100-year floodplain was determined from the Corps of Engineers - South Branch Kishwaukee River Floodplain Information, (June 1971), and field data collected on Bull Run Ditch which included interviews with village officials and local residents. Aerial photographs were provided by the Division of Water Resources. Damages were based on property value estimates during field review, and the application of damage factors. These factors came from previous detailed floodplain management studies.





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